

We claim:

1. A multiconductor plug and socket means arrangement, said plug means having a plurality of plug contacts thereon, adapted for insertion in said socket means, said socket means having a plurality of socket contacts disposed thereon, comprising:

a) a first plug contact of said plug contacts electrically coupled to a simple electronic device such as a diode, at least one other contact electrically coupled to an electronic isolation means;

b) said socket contacts electronically coupled to a simple electronic device such as a diode, at least one other contact electronically coupled to an electronic isolation means;

c) the plug isolation means activated only when the socket diode is detected by the full engagement of the plug and socket so as to then permit electrical current to flow to and/or from said at least one other contact thereon; and

d) the socket isolation means activated only when the plug diode is detected by the full engagement of the plug and socket so as to then permit electrical current to flow to and/or from said at least one other contact thereon.

2 A multiconductor plug and socket arrangement comprising:

a) a pair of plug contacts, electrically coupled to each other via a simple electronic device such as a diode;

- b) a pair of socket contacts , electrically coupled to electronic isolation means;
- c) the socket isolation means being activated only when current is detected in the diode upon full engagement of the plug and socket arrangement.

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3. A multiconductor plug and socket arrangement comprising:

- a) a pair of socket contacts, electrically coupled to a simple electronic device such as a diode;
- b) a pair of plug contacts, electrically attached to electronic isolation means;
- c) said isolation means activated only when current is detected in the socket diode upon full engagement of the plug and socket arrangement.

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4. The invention as defined in claims 1, 2 or 3, where the plug and socket each comprise fixed diameter barrel-style coaxial bodies.

5. The invention as defined in claims 1, 2, 3 or 4 where the isolation means incorporates a time delay circuit that maintains the electrical isolation between plug and socket for a fixed period in order that there is adequate time to fully engage the plug and socket assembly and thereby avoid false activation.

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6. A multiconductor plug and socket means,

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said plug means having at least three electrically conducting plug contacts thereon, adapted for insertion in socket means;

said socket means having a corresponding number of electrically conductive socket contacts thereon;

a first of said plug contacts electrically coupled to a second of said plug contacts via a plug-side current direction-limiting means;

a first of said socket contacts electrically coupled to a second of said socket contacts via a socket-side current direction-limiting means;

said first and second plug contacts adapted for electrical communication with said first and second socket contacts only upon proper engagement of said socket means with said plug means; and

circuit isolation means, said circuit isolation means only permitting flow of electrical current through one or more remaining plug-socket contact pairs when current flow through at least one of said plug-side and socket-side current direction-limiting means is detected.

7. The multiconductor plug and socket means as claimed in claim 6, wherein said circuit isolation means comprises plug-side circuit isolation means, said plug-side circuit isolation means only

permitting flow of electrical current to at least one remaining plug contact when current flow through said socket-side current direction-limiting means is detected.

5           8.    The multiconductor plug and socket means as claimed in claim 6,  
              wherein said circuit isolation means comprises socket-side circuit  
              isolation means, said socket-side circuit isolation means only  
              permitting flow of electrical current to at least one remaining plug  
10           contact when current flow through said plug-side current direction-  
              limiting means is detected.

              9.    The multiconductor plug and socket means as claimed in claim 6,  
              wherein said circuit isolation means comprises:

15                         plug-side circuit isolation means, said plug side circuit  
                          isolation means only permitting flow of electrical current to at  
                          least one remaining plug contact when current flow through said  
                          socket-side current direction-limiting means is detected; and

20                         socket-side circuit isolation means, said socket-side  
                          circuit isolation means only permitting flow of electrical current  
                          to said at least one remaining plug contact when current flow  
                          through said plug-side current direction-limiting means is  
                          detected.

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10.           The multiconductor plug and socket means as claimed in claim 6, 7, or 8 wherein said circuit isolation means includes a time delay circuit.

5           11.           The multiconductor plug and socket means as claimed in claim 6, 7, 8, or 9 wherein said current direction-limiting means is a diode.

10           12.           A multiconductor plug and socket means, said plug means adapted for mating engagement with said socket means, comprising:

                  (i)     first and second plug contacts situate on said plug means, electrically coupled to each other via plug-side current direction-limiting means;

15                   (ii)    first and second socket contacts, situate on said socket means and adapted to correspondingly come into electrical contact respectively with said plug contacts when said plug means is properly and fully engaged with said socket means, said first and second socket contacts electrically coupled to each other via socket-side current direction-limiting means;

20                   (iii)   at least one additional plug contact and socket contact on each of said plug and socket means, respectively,

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each similarly adapted to come into electrical contact  
with each other when said plug means is fully engaged  
with said socket means;

5 wherein said plug and socket means are each adapted with circuit  
isolation means capable of only permitting flow of electrical current  
through said at least one additional plug and socket contact when  
current flow through at least one of said plug side and socket side  
current direction-limiting means is detected.

10 13. The multiconductor plug and socket means as claimed in claim 12,  
wherein said current direction-limiting means is a diode.

14. Apparatus for establishing electrical connection between a pair of  
15 electrical contacts, comprising :

plug means;

socket means;

20 said plug means having one of said pair of electrical  
contacts thereon and a further first and second electrical plug  
contact thereon, said plug means adapted for insertion in said  
socket means;

said socket means having the other of said pair of electrical contacts thereon, and a further first and second socket contact thereon;

said first of said plug contacts electrically coupled to said second of said plug contacts via a plug-side current direction-limiting means;

said first socket contact electrically coupled to said second of said socket contacts via a socket-side current direction-limiting means;

said first and second plug contacts adapted for electrical communication with said first and second socket contacts only upon proper engagement of said socket means with said plug means; and

circuit isolation means, said circuit isolation means only permitting flow of electrical current through said pair of electrical contacts when current flow is detected through at least one of said plug-side and socket-side current direction-limiting means.

15. The apparatus as claimed in claim 14, wherein said current direction-limiting means is a diode.

16. The apparatus as claimed in claim 14, wherein said circuit isolation means includes a time delay circuit.